REMARKS

Prior to entry of this Amendment and Response, claims 1-20 are pending. Following entry, claims 1-21 will be pending.

Rejections Under 35 U.S.C. § 102- Geisler

The Examiner rejected claims 1-5 and 7-14 under 35 U.S.C. §102 as anticipated by United States Patent No. 4,809,708 to Geisler. For at least the following reasons, the Applicant respectfully disagrees with the Examiner's assertion.

The Examiner alleged Geisler's computer controller, loudspeaker, and hearing aid read on "stimulus generating means for transmitting (or presenting) at least one true random stimulus sequence to a subject's inner ear," as required by claims 1, 7, 13, and 14. In support of this allegation, the Examiner cited col. 4, lines 50-56 and col. 5, lines 16-24. The Applicant can find no teaching or suggestion of a true random stimulus in Geisler, as the term "true random stimulus" is defined by the present application.

The definition of a true random stimulus is explicit in the present application. "By the term 'true random,' it is meant to mean substantially devoid of a definitive pattern or relationship with time" (application, p. 5). The Applicant respectfully submits this term defines the phrase "true random" in the claims.

By contrast, Geisler discloses that the computer controller produces "a time varying output signal to a loud speaker 28" (col. 5, lines 45-50). The Applicant respectfully submits a "time varying" signal is not the same as a signal "substantially devoid of a definitive pattern or relationship with time," as required by independent claims 1, 10, and 14. Indeed, any periodic signal varies with time.

The Applicant notes a computer controller 24 provides a digital signal, which is converted to an analog output signal broadcast by a loudspeaker to a hearing aid, which serves as Geisler's input stimulus (*id.*) As known in the art and disclosed in the specification of the present application (p.7, lines 12-21), computer controller generally employ so-called "pseudo-random samplers." A pseudo-random sampler uses a fixed clock to generate outputs directly linked to a base kernel or frequency. While the Applicant appreciates Geisler discusses providing "random phases" assigned to a sequence of pure tones (col. 5, 16-21), it is respectfully submitted such "random phases" are inherently pseudo-random, since Geisler contains no teaching or suggestion its computer controller generates any random sequence in a fashion non typical in the prior art. In short, Geisler's computer controller functions in the pseudo-random manner set forth by the Applicant at page 7 of the present application, and

thus does not produce the "true random" stimulus required by claims 1, 7, 13 and 14. accordingly the Applicant respectfully submits Geisler cannot serve as a § 102 reference against the inventions of these claims.

With respect to claims 3, 7, 12, and 13, the Examiner alleged Geisler teaches applying a fast Fourier transform (FFT) to determine a response signal from digitized data inherently teaches "applying a plurality of true random frequencies to said response signal," as required by claims 3 and 7. The Applicant respectfully disagrees.

A FFT does not apply any frequencies, random or otherwise, to a signal. Rather, a FFT is a relatively quick and convenient method for obtaining a frequency domain representation of a signal (col. 3, lines 19-20). In Geisler, the signal subjected to a FFT is the stimulation signal (col. 3, line 21). A FFT is a mathematical operation that does not require any particular frequencies to operate, regardless of whether those frequencies are "true random" as claimed in claims 3 and 7 or not. Similarly, applying an FFT to a signal does not apply any frequencies thereto, but instead yields the frequency response of the signal as it existed *before* the FFT was applied. Accordingly, the Applicant respectfully submits the mere act of applying an FFT to a stimulus signal, as taught by Geisler, does not and cannot anticipate reconstructing a waveform by "applying a plurality of true random frequencies" to the waveform. Thus, Geisler cannot anticipate claims 3, 7, 12, and/or 13 under 35 U.S.C. § 102.

The Applicant notes claim 10 has been amended to more particularly set forth a method for generating a true random stimulus. Specifically, amended claim 10 now requires the steps of "generating a plurality of randomly spaced digital pulses" and "dividing said plurality of randomly spaced digital pulses by a lower frequency set of randomly spaced digital pulses to yield a true random stimulus." The Applicant respectfully submits Geisler neither teaches nor anticipates either of these limitations. Accordingly, Geisler cannot serve as a § 102 reference against independent claim 10.

With respect to the remaining claims rejected by the examiner under 35 U.S.C. § 102 in view of Geisler, claims 2, 4, 5, 8, 9, and 11 all depend from one of independent claims 1, 3, 7, or 10, either directly or indirectly. Accordingly, the Applicant respectfully submits these claims are themselves patentable. The Applicant makes this statement without reference to the independent bases of patentability contained within each dependent claim.

Insofar as each of claims 1-5 and 7-14 have been shown patentable over Geisler, the Applicant respectfully requests the Examiner withdraw her rejection and allow these claims as soon as practicable.

Rejections Under 35 U.S.C. § 103- Geisler and Bye

The Examiner rejected claims 15-20 as rendered obvious by the combination of Geisler and United States Patent No. 6,366,863 to Bye et a. ("Bye"). For at least the following reasons, the Applicant respectfully disagrees.

Claim 15 requires a "signal conditioning filter" included in a "signal conditioning circuit." The signal conditioning circuit receives an electrical response signal generated from a second sound wave reflected from a patient's inner ear. The Examiner admits Geisler fails to teach such a circuit or filter.

The Examiner alleges, however, that Bye contains such a teaching. In the Examiner's words, Bye discloses "a hearing related analysis system. Bye's system disclose the use of an adjustable filter coupled with an amplifier (col. 7, lines 29-36), which constitutes as a conditioning filter" (p.6 of the Office action). The Applicant respectfully disagrees both with the Examiner's motivation to combine Geisler and Bye, and with her characterization of Bye.

First, the Applicant respectfully submits one of ordinary skill in the art would not combine Bye and Geisler. Geisler discloses an audiometric testing apparatus for the human ear. Bye, however, discloses a method and apparatus for programming a hearing aid, not testing a person's hearing (Abstract; col. 3, lines 58-64; col. 7, lines 37-65). One would not look to a method for programming a hearing aid to solve problems related to patient diagnostics. Geisler is directed to determining how well a person hears unassisted, while Bye is directed to adjusting an electronic hearing aid. Accordingly, the Examiner's combination is one of hindsight.

Additionally, the filters discussed in Bye and cited by the Examiner are internal elements of the hearing aid itself, and not part of any testing or diagnostic scheme: "It has been known to provide an adjustable filter... for modifying the amplifying characteristics of [a] hearing aid" (col. 7, lines 33-36). Bye, in this section, discusses the operation of a programmable hearing aid and various means of operation (generally, col. 7, lines 13-48). Bye is not disclosing any testing or analysis of hearing whatsoever. Instead, it discusses the *amplification* and *enhancement* of hearing, via a hearing aid. Accordingly, one of ordinary skill in the art would be particularly unmotivated to combine Bye's hearing aid with Geisler's testing apparatus.

Accordingly, the Applicant respectfully submits the combination of Bye and Geisler fails to anticipate or render obvious the invention of claim 15. Therefore, claim 15 is patentable over the combination of cited references.

To the extent the Examiner asserts Geisler teaches true random stimuli, the Applicant incorporates the remarks set forth above with respect to the 35 U.S.C. § 102 rejection of claims 1-5 and 7-14 in view of Geisler.

Claims 16-20 depend from claim 15, either directly or indirectly. Accordingly, the Applicant respectfully submits these claims are themselves patentable. The Applicant makes this statement without reference to the independent bases of patentability contained within each dependent claim.

Insofar as each of claims 15-20 have been shown patentable over Geisler and Bye, either separately or in combination, the Applicant respectfully requests the Examiner withdraw her rejection and allow these claims as soon as practicable.

Rejections Under 35 U.S.C. § 103- Geisler

The Examiner rejected claim 6 under 35 U.S.C. § 103 as unpatentable over Geisler. For at least the following reason, the Applicant respectfully disagrees.

The Applicant has set forth above Geisler's inability to teach "applying a plurality of true random frequencies" to a waveform in rebutting the § 102 rejections of claims 3, 7, 12, and 13. The Applicant accordingly incorporates those remarks herein. For those same reasons, the Applicant respectfully submits Geisler fails to render obvious the invention of claim 6.

Since claim 6 is shown to be patentable over Geisler, the Applicant respectfully requests the Examiner withdraw her rejection and allow the claim as soon as practicable.

New Claims 21-23

By this Amendment and Response, the Applicant adds new claims 21-23. The Applicant respectfully submits each of these claims are patentable over the various references disclosed in the Office action, for at least the following reasons.

Claim 21 depends from claim 1, and claim 22 depends from claim 6. Both of these claims require the stimulus generating means of their respective independent claims comprise "means for generating a broad band noise proportionate in value to the temperature of the means for generating a broad band noise." The Applicant respectfully submits no reference disclosed in the Office action contains such a teaching or suggestion. Thus, the Applicant further respectfully submits claims 21 and 22 are patentable over the cited references.

Claim 23, which depends from claim 15 requires "a synchronous clock operative to apportion [a] response electrical signal in a buffer" and "an asynchronous clock operative to

determine [a] sampling point" during which a second sound wave is received. After a thorough review of both Geisler and Bye, the Applicant respectfully submits neither reference, alone or in combination, teaches or renders obvious these limitations of claim 22. Accordingly, the Applicant respectfully submits new claim 22 is patentable over the cited references.

Conclusion

This Amendment and Response is submitted contemporaneously with a petition for a three-month extension of time in accordance with 37 CFR § 1.136(a). The USPTO is hereby authorized to charge Deposit Account No. 04-1415 the $490.00 extension fee. The Assignee believes no further fees or petitions are required. However, if any such petitions or fees are necessary, please consider this a request therefore and authorization to charge deposition account number 04-1415 accordingly.

Should any issues remain, the Examiner feels may be resolved by telephone conference, she is invited to contact the undersigned attorney at 303-629-3400.

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Respectfully submitted,

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